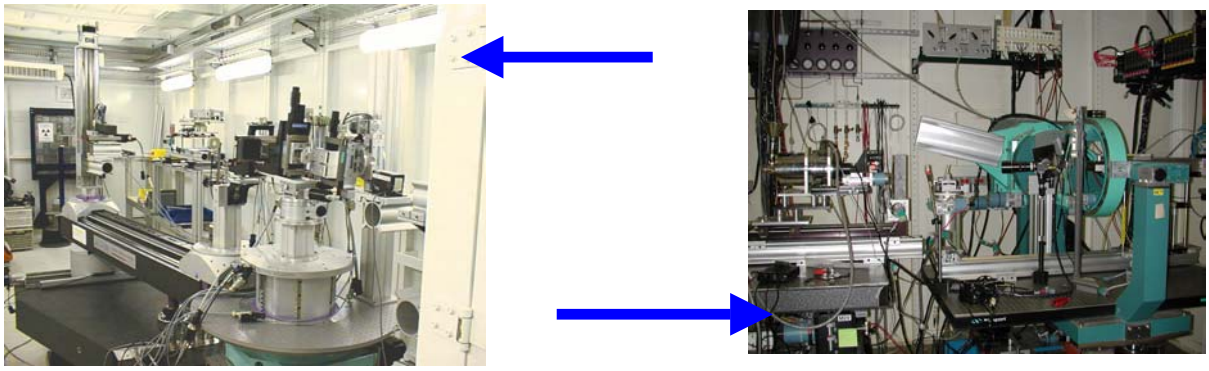
ESRF ID-11 dedicated facility



APS XOR-1 general purpose high energy x-ray beamline

Development of the Three Dimensional X-ray Diffraction Microscope:

- Fundamental science of polycrystals
- Non-destructive probe of internal bulk microstructure
- Watch microstructure dynamics deep inside bulk materials

Synchronized Transatlantic Synchrotron Research

R. Suter/CMU MRSEC, Carnegie Mellon University, DMR-0079996

Scientists in Carnegie Mellon's MRSEC are collaborating with scientists at Risoe National Laboratory (Denmark) on the development of a new technique for probing the internal microstructure of polycrystals. Using high energy synchrotron x-rays that penetrate through centimeters of solid samples, the technique can nondestructively measure the shapes and orientations of individual grains and how they change with time. This information is needed to understand how to control the properties of advanced ceramic and metallic materials. Henning Poulsen's group at Risoe built the first facility at the European Synchrotron Radiation Facility in Grenoble. Together we are working to develop a second-generation facility at the Advanced Photon Source.

The image on the right shows the ESRF ID-11 dedicated facility